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ABSTRACT

This monograph provides educational staff with a theoretical basis for decision-making skills for application in quality circles. Roadblocks to good decisions are outlined, as well as the differences between group decision-making and individual decision-making (both have problems). The influence of values and personality characteristics on decision-making are presented, emphasizing the importance of individuals' understanding of their preferences. The qualifications of decision-makers are viewed in light of programmed and nonprogrammed decisions, the precedent of quality circles, clues from management theory, and situational leadership styles. In discussing an overview of decision-making in quality circles, the author presents 13 steps in the process, as well as suggestions for presenting the factual basis for a decision. The final section of the workbook--a systematic approach to decision-making--includes a step-by-step application using examples of relevant problems. (MD)

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MAKING DECISIONS IN QUALITY CIRCLES

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EA 016 269

MAKING DECISIONS
IN
QUALITY CIRCLES

prepared by
Mildred Browne, Ed.D.

June, 1982

EDUCATIONAL QUALITY
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FOREWORD

This monograph is one of a series to be used in training courses for the implementation of Quality Circles (QC) in educational settings. The purpose is to provide educational staff with training curriculum to enable them to be effective in participatory decision-making in Quality Circles.

Quality Circles are the means through which world-renowned Japanese business management has successfully involved employees in management decision-making. Use of QCs in an educational setting will also provide a system for educational administrators to fully tap the decision-making talents of participants in the system. This provides the dual services of:

(1) Giving staff opportunity for non-administrators to affect the course of education through their input and ideas, and,

(2) Increasing the quality and acceptability of administrative decisions. Research suggests than an approach where all members of an organization reach consensus in what decisions to adopt yields more creative decisions and more effective implementation than does individual decision-making (Ouchi, 1982).

There are erroneous assumptions that state:

(1) Decision-making comes naturally, and

(2) Practice in decision-making improves effectiveness.

A good practice is necessary but insufficient. In truth, good decision-making skills must be acquired through training. This monograph will provide educational staff with a theoretical basis for decision-making and a systematic training approach for acquiring decision-making skills.

INTRODUCTION

The project of which this monograph is a part was initiated because of a belief that: a restructuring of the traditional, organizational system to allow for greater participation of all school staff in identifying problems and in seeking solutions could lead to the basic restructuring of organizational relationships producing a participatory and cooperative educational effort rather than one that reflects self-centered and isolated interests (Alvord, 1981).

The concept of the QC was selected as the vehicle for the project because it appeared to have the potential to raise the quality and image of American education in the same way it raised the quality and image of Japanese industry from a producer of "cheap poorly made goods" to one of "top level, quality products."

The QC as innovated in Japan is a participative management system in which workers make suggestions and improvement for the betterment of the company. The QC operates to define, analyze and solve quality problems. The essence of QC is group decision-making and collective problem solving.

> Effectiveness in decision-making is a valuable personal skill which can increase the quality of one's life.
>
> To be skilled in decision-making the skill of decision-making needs to be exercised.

Decision Making

Decision making is the act of forming an opinion or of deciding upon a course of action. (Webster's Third New International Dictionary, Unabridged, 1976).

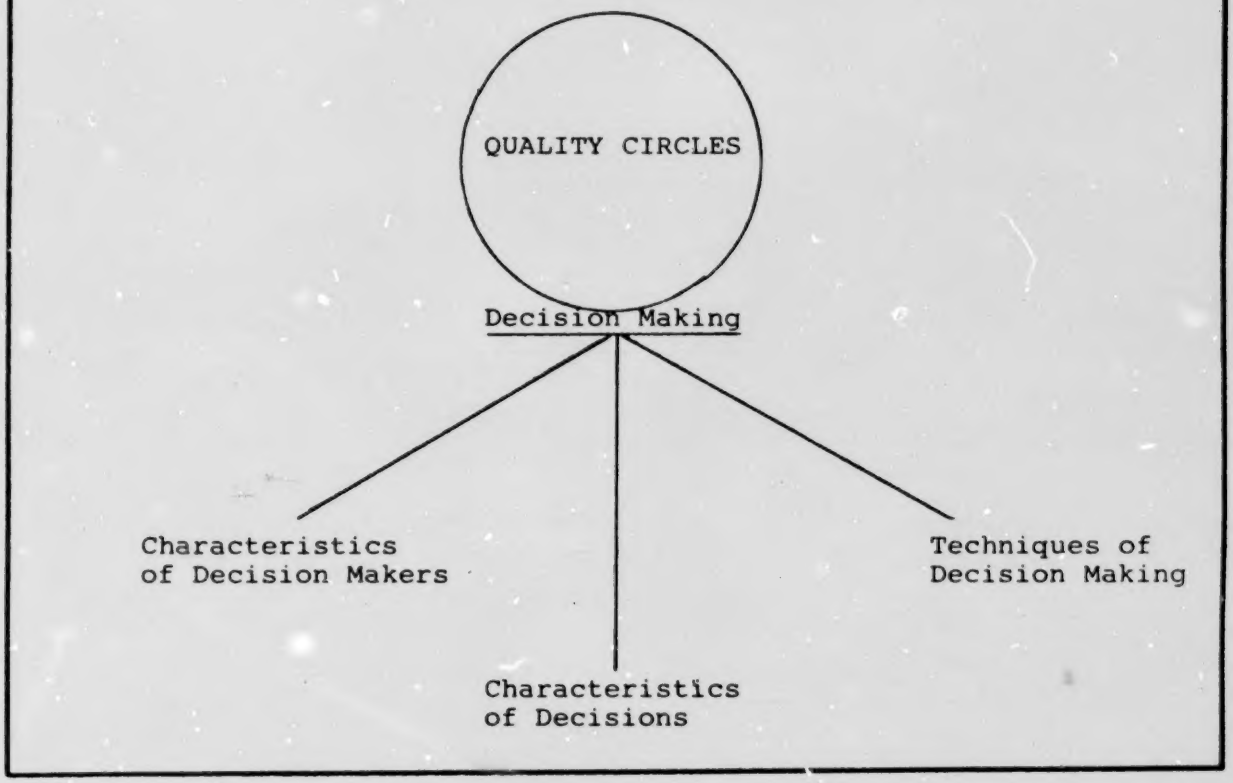
Objectives

This monograph has been developed for the following purposes:

- to allow participants to practice decision-making in an educational QC model
- to discuss which kinds of decisions are made through participatory decision making or group concensus
- to discuss possible road blocks to good decision making
- to provide participants with a suggested tool for systematic decision making
- to discuss the importance of team building in effective decision making
- to discuss the influence of values and personality characteristics in the decision-making process
- to discuss the kinds of decisions that are best made by groups such as QCs and those that are best made by individuals and other caveats regarding making good decisions

An overview of the monograph is presented in the figure which follows:

Figure 1. Overview



PRETEST-POSTTEST

1. Which of the following did Arnold list as Pitfalls to good decision making?

a. risky-shift phenomenon
b. positive thinking
c. personal values
d. common sense

2. Which of the following did Simon state as cautions for group decision making?

a. risky-shift phenomenon
b. groupthink
c. tending toward compromise
d. acting in self-interest

3. Which of the following are "values?"

a. independence
b. squeamishness
c. sunlight
d. happiness

4. Who best makes programmed decisions?

a. individual
b. group
c. Quality Circle
d. all of the above

5. Who can best make complex decisions?

a. individual
b. group
c. Quality Circle
d. all of the above

6. Who can best make decisions when the problem is novel, its structure is vague, ambiguous, or complex?

a. individual
b. group
c. Quality Circle
d. all of the above

7. Which of the following was defined by Hersey and Blanchard as a leadership style?

a. management by objective
b. high task/high people orientation
c. theory z
d. situation-specific style

8. Reorder the seven steps listed below in the order given by Arnold to solve decisions:

a. Smoke out the issues
b. Search for solutions
c. Establish your priorities
d. Troubleshoot your decision
e. Test the alternatives
f. State your purpose
g. Set your criteria

a.
b.
c.
d.
e.
f.
g.

Road Blocks to Good Decisions

There are many possible road blocks to good decisions that can be detoured if they are recognized early in the decision-making process. Some of these road blocks have to do with decision making in groups where group pressures act upon the decision as forcefully as individual's preferences and personalities. This action outlines some of these roadblocks to alert members of a QC decision-making team to their possible effects in hopes that they will be avoided by careful forethought.

Exercise #1

OBJECTIVE: PARTICIPANTS TO BRAINSTORM AND GENERATE A LIST OF ROADBLOCKS AND POSSIBLE STRATEGIES TO NEUTRALIZE THESE ROADBLOCKS.

PROCEDURE: DIVIDE TOTAL GROUP INTO SUBGROUPS OF APPROXIMATELY SIX PARTICIPANTS. EACH SUBGROUP SELECTS A FACILITATOR AND A RECORDER. THE PRODUCT OF EACH GROUP WILL BE A LIST OF POSSIBLE STRATEGIES TO NEUTRALIZE THE ROADBLOCKS WHICH ARE LISTED. THE RECORDER OF EACH GROUP WILL REPORT THE GROUP'S FINDINGS TO THE LARGER GROUP.

Arnold's Pitfalls and Snares

Arnold (1978) stresses that even with a good format for making decisions the roadblocks and pitfalls described below may impede good decision making.

Positive Thinking

In order to make good decisions, we have to look unpleasant truths in the face. Positive thinking is often nothing more than a disguise for wishful thinking--use positive thinking after you make your decision, not before.

Intuition

Intuition is defined as quick perception of truth without conscious attention or reasoning. Often what is called intuition is based on emotion or knowledge that is not recalled at the moment. The brain tends to pick up a great deal of information without knowing its source. It is helpful to ask questions about any

intuitive decision, such as:

- Why do you intuitively feel that a certain course of action is right?

- Is there some fact or bit of knowledge in your subconscious that should be included in the conscious decision-making process?

- Do you lean towards a decision because of a personal feeling? What is the feeling and why do you have it?

If you answer these questions you will be able to justify your "intuitive" decisions to yourself and others.

Common Sense

Common sense usually produces decisions to do the obvious. These decisions may be an excuse for not thinking or analyzing the problem thoroughly. It is wiser to probe your thoughts, feelings, and experiences comprising your "common sense" just as we did for "intuition".

The "What If" Game

In its simplest form, this game consists of a person sitting down and trying to anticipate trouble by saying "What if . . .? What should I do then?"

In most situations it is better to take preventive action and avoid mistakes rather than waiting for the mistakes to occur. The "what if" game can be helpful if its primary purpose is preventive rather than reactive. It enables planners to take steps to reduce the likelihood of an undesirable event occurring while making up contingency plans to cope with the worst if preventive action is unsuccessful.

Listing Pros and Cons

Arnold suggests that the pros and cons should be considered only in light of their relative weightings of importance. He discourages the listing of what could be an interminable list of pros and cons.

Exercise #2

OBJECTIVE: PARTICIPANTS WILL HAVE AN OPPORTUNITY TO DISCUSS THE PITFALLS MENTIONED ABOVE (POSITIVE THINKING, INTUITION, COMMON SENSE, THE "WHAT IF" GAME, THE LISTING OF PROS AND CONS) AND HOW THEY MIGHT IMPEDE THE DECISION-MAKING PROCESS.

PROCEDURE: DIVIDE TOTAL GROUP INTO SUBGROUPS OF APPROXIMATELY SIX PARTICIPANTS. EACH SUBGROUP SELECTS A FACILITATOR AND A RECORDER AND DISCUSSES ONE OF THE PITFALLS AS ASSIGNED BY THE WORKSHOP DIRECTOR. THE PRODUCT OF EACH GROUP WILL BE EXAMPLES OF PROBLEMATIC SITUATIONS WHERE THE PARTICULAR PITFALL MIGHT IMPEDE GOOD DECISION-MAKING.

Simon's Limited Reality Theory

Herbert Simon's (1957) theory focuses on how administrators make decisions. He indicates that constraints experienced by administrators are common to all of us as decision-machines. We are fallible human beings. Simon received the Nobel Prize for pointing out our specific fallacies as decision makers...i.e., for exposing how we REALLY make decisions in contrast to how decision theorists suggest we should.

Decision theory originally grew out of a view of the decision maker as a purely economic being...completely rational, making "optimal choices" in a highly specified and defined environment. When confronted with a problem, the decision maker would supposedly:

- clearly define decision criteria
- be knowledgeable of all relevant alternatives
- be aware of all possible consequences of each alternative
- evaluate the consequences against the decision criteria
- rank alternatives in a preferred order of economic impact
- and then select the alternative which was most preferred (ranked highest) for organizational goal attainment.

In reality, Simon contends:

- It is unfeasible to search for each and every alternative
- the sole motive in making decisions is not the economic incentive
- decisions are not made in an environment of certainty where all alternatives are known
- individuals cannot always state their decision criteria objectively, nor list their preferences from most to least preferred;
- humans have a limited capacity for comprehending the inherent complexity in decision making
- they cannot be perfectly rational

In practice, the REAL decision maker cannot optimize. The decision maker will:

- reorganize only a limited number of decision criteria
- propose only a limited number of alternatives
- be aware of only a few consequences to each alternative
- formulate a simplified and limited model of the real situation
- and select the alternative which presents a satisfactory (not optimal) solution.

Knowing these real limitations in an individual's decision making process allows for their consideration and promotes an attitude of openness that can generate more criteria, more alternatives, more consequences and a more complete model of the real situation. Increasing the number of choices increases the possibility that the final choice will be a good one.

RATHER THAN DEALING WITH THE TOTALITY OF THE REAL WORLD, WHICH IS IMPOSSIBLE FOR THE DECISION MAKER TO COMPREHEND, DECISIONS ARE MADE IN TERMS OF PERSONAL ABSTRACTIONS. THE VALUES AND PERSONALITY CHARACTERISTICS OF THE DECISION MAKER STRONGLY INFLUENCE THESE ABSTRACTIONS.

If one is aware that one's criteria, alternatives, and model of the situation are influenced by one's values and personality characteristics, one can be more open to suggestions from others in a group decision making situation.

Robbins (1980) argues that in addition to the inherent human limitations, the organization or system itself imposes constraints and pressures on decision makers. He demonstrates how the organization's performance evaluation and reward procedures, goals, policies, historical precedents, and system-imposed time constraints encourage

- power seeking
- risk avoidance
- style over substance
- an early choice of an implicit favorite alternative

Exercise #3

OBJECTIVE: PARTICIPANTS WILL HAVE AN OPPORTUNITY TO DISCUSS HOW THE ORGANIZATION OR SYSTEM IMPOSES CONSTRAINTS ON DECISION-MAKERS.

PROCEDURE: DIVIDE TOTAL GROUP INTO SUBGROUPS OF APPROXIMATELY SIX PARTICIPANTS. EACH SUBGROUP WILL SELECT A FACILITATOR AND A RECORDER FOR THE SESSION. THE PRODUCT OF EACH GROUP WILL BE A LIST OF EXAMPLES OF HOW GOALS, EVALUATIONS, POLICIES, HISTORY, ETC. OF A SYSTEM OR ORGANIZATION MIGHT IMPOSE CONSTRAINTS ON DECISION-MAKERS.

Decision-makers are motivated by what they believe is their PERSONAL SELF-INTEREST which goes beyond strict economic considerations. They seek to maximize pleasure and minimize pain from their actions. Decision-makers "play politics"; i.e., they act to enhance their own position, regardless of costs to the organization or to others. (Simon, 1957)

Decision makers seek a SATISFACTORY RATHER THAN OPTIMUM SOLUTION and limit creative efforts to develop alternatives. They avoid the difficult task of considering all the important factors and weighing their relative merits and drawbacks.

Errors in Judgement occur. These occur for a variety of reasons, including:

- decision makers use irrelevant information in forming a judgment
- decision makers make judgments hastily, particularly as complexity increases
- information received early is given greater weight than later received information.

In summary, organizational constraints cause decision makers to:

- be desirous of power so as to be able to control the decisions that affect them personally
- be concerned with avoiding risks because they perceive penalties attached to failure to be greater than the rewards associated with risk taking and success
- look toward the short-term because that is the basis upon which rewards are conditioned
- be concerned with style rather than with substance, since visible decisions tend to be rewarded more than important decisions
- frequently establish an implicit favorite alternative and then rationalize their choice by searching for data to support the alternative

Group Decision Making Pitfalls and Snares

With all the difficulties and inherent limitations an individual experiences in the decision-making process, one might jump to the conclusion that groups are better decision-making bodies than individuals. The truth of the matter is that in some cases they are and in some they are not.

Robbins points out that ON THE AVERAGE, IN SOME SITUATIONS, groups make better decisions than individuals, HOWEVER,

- while group decisions are better than those which could be reached by the AVERAGE member of the group they are rarely as good as the decision by the BEST member.
- Groups consume more resources so their improved effectiveness must be compared against their poorer efficiency
- The superiority of group decision making varies according to the type of decision situation and the interpersonal relations within the group.
- Decisions involving new problems, or situations, or complex issues, or far-reaching decisions may be more effectively made by groups, providing members have varied backgrounds and experiences.
- Diverse views can provide the questioning and challenge needed to uncover weak or erroneous assumptions as well as increase opportunities for the development of creative alternatives.
- If acceptance of a decision by many individuals is critical to its effectiveness, having these individuals participate in the decision is logical. Participation in the process, increases commitment and motivation of those who will enact the decision. Group decisions increase acceptance and implementation of a final decision.
- Effectiveness of a group decision is influenced by the size of the group. The larger the group the greater the opportunity for varied representation but the more coordination and increased time to contribute is required. (Six to fifteen is probably a good size, although committees of five with adequate skills and knowledge can be very effective.)

Simon's Cautions for Group Decision Making

Unfortunately, tendencies inherent in decision-making individuals are also characteristic of groups.

> Groups also act in their self-interest, seek satisfactory (rather than Optimal) solutions, strive for power, have a short-term frame of reference, and emphasize style over substance. And relative to individual decisions, group decisions may lead to greater risk. (Simon, 1957)

The problems with groups are mainly:

- **they increase pressures toward conformity, and**
- **they compromise in decision making.**

Groups establish norms which dictate acceptable standards of behavior for members. Members are influenced to align themselves and their behavior in the direction of the norms.

When the norms reinforce outward agreement and the withholding of deviant, minority, or unpopular views, we have "groupthink", that is, a deterioration in the individual's mental efficiency, reality testing, and moral judgments as a result of group pressure.

Groups frequently are composed of a variety of individuals who must compromise to make a decision. The task of identifying the problem is complicated because not all group members are likely to agree on the need for a decision. Problems arise in reaching an agreement on the criteria and weights to be used in assessing various alternatives.

Differences of opinion exist as to what is important, what is fact and what is conjecture, and what outcome is "best."

Group decisions tend to be characterized by compromise in every step of the decision making process: "A camel is a race horse designed by a committee."

The famed "risky shift phenomenon" is the well-documented tendency of group decisions to be riskier than decisions made by individuals. Whether this is because responsibility for the decision is diffused in a group, freeing the individual from blame in case of failure, or whether it occurs because risk-taking is an admirable characteristic evoked by peer pressure in groups, is not clear. What is important is that the potential for poor decisions in groups increases as the increased propensity to assume risks is combined with greater difficulty in identifying responsibility. (Simon, 1957)

Exercise #4

OBJECTIVE: PARTICIPANTS WILL DISCUSS STRATEGIES TO OVERCOME ROADBLOCKS TO GOOD GROUP DECISION-MAKING.

PROCEDURE: DIVIDE TOTAL GROUP INTO SUBGROUPS OF APPROXIMATELY SIX PARTICIPANTS. EACH SUBGROUP WILL SELECT A FACILITATOR AND A RECORDER FOR THE SESSION. THE PRODUCT OF EACH GROUP WILL BE A LIST OF SUGGESTIONS FOR DETOURS FOR EACH OF THE ROADBLOCKS LISTED BELOW:

- Groups act in their own self-interest
- Groups seek satisfactory, rather than optimal solutions
- Groups strive for power
- Groups have a short-term frame of reference
- Groups emphasize style over substance
- Groups may be risk-prone and responsibility-shy
- Groups tend toward conformity
- Groups tend toward compromise

THE INFLUENCE OF VALUES AND PERSONALITY CHARACTERISTICS ON DECISIONS

One of the messages that has been repeated by every decision-making "expert" is that the decision-maker's values and personality are highly influential factors in the decision-making process. This observation may appear so obvious that it is taken for granted decisions will be a reflection of the personality characteristics and personal value system of the decision-maker. There is a need to examine the influence of these factors on one's own decisions in order that their influence does not become a block to making decisions that reflect the group as well as one's own self.

The following section examines how yours' and others' values and pesonalities can be recognized and acknowledged in the group decision-making process.

Values and Objectives

Choosing an alternative depends upon your character, values, and circumstances. To make a sound personal decision, it is important to make sure that your values and ratings represent your true thinking and feeling. In personal decisions it's often helpful to clarify your values by talking things over with someone who can serve as a sounding board. Such a person should draw out your thoughts and feelings without imposing his value system on you.

In collaborative decision making such as found in a QC, decisions are also based on values, however, the important values to be considered are those which the group upholds.

Values are the foundation of the complete decision-making process. According to Arnold (1978), if a decision or a series of decisions is to help you get what you want out of life you first have to decide what it is you want out of life.

The four major requirements of skillful decision-making are:

1. Examinations and recognition of personal values
2. Knowledge and use of adequate, relevant resources
3. Weighing of influence and measuring them against personal needs and values
4. Knowledge and use of an effective strategy for converting information into action.

Lack of knowledge of personal values and lack of decision-making skills restrict or limit the decisions which can be made with satisfaction.

Values are the foundation and integrating framework of the complete decision-making process. Values determine what is satisfying and thus help each of us to set objectives. Values also dictate the actions to be taken to reach these objectives.

The kind of information which is sought, the evaluation of that information, and the weight given to various pieces of data are influenced by personal values. The strategy which is selected to achieve an objective is governed by values. Choosing to use the decision making process is a value. When a person faces a decision with a conflict of values, mixed with strong emotions, he knows he faces an important decision, one requiring skill to decide satisfactorily.

Values include the following considerations:

-The importance of values in the decision making process.

-The individual, personal nature of values.

-A definition of values.

-Recognition of values in others.

-Clarification of one's own values.

-Identification of group values.

-Synthesizing values into objectives for use in making decisions.

Values

Values can be defined as:

SOMETHING A PERSON PRIZES, CHERISHES, ESTEEMS--SOMETHING HE EXPRESSES CONSISTENTLY IN HIS BEHAVIOR. THE TERM "VALUES" SO DEFINED IS INTENDED TO BE A BROADER CONCEPT THAN INTERESTS, FEELINGS, BELIEFS, OR ATTITUDES.

Some examples of values are:

-advancement

-making profit

-social conformity

-obedience

-charity

-happiness

Exercise #5

OBJECTIVE: PARTICIPANTS WILL BE ABLE TO DISCUSS THE TERM "VALUE" AND GENERATE A LIST OF EXAMPLES OF VALUES.

PROCEDURE: WITH THE FACILITATION OF THE WORKSHOP DIRECTOR, THE TOTAL GROUP WILL VERBALLY ADD TO THE LIST OF EXAMPLE VALUES GIVEN BELOW. THE PRODUCT OF THE GROUP WILL BE A WRITTEN LIST OF EXAMPLES OF VALUES WHICH CAN BE POSTED ON BUTCHER PAPER.

1.	Advancement	7.	
2.	Making Profit	8.	
3.	Social Conformity	9.	
4.	Obedience	10.	
5.	Charity	11.	
6.	Happiness	12.	

Objectives

With values in mind, we can identify objectives. OBJECTIVES ARE STATEMENTS OF INTENTIONS SPECIFYING A PERSON'S WANTS, DESIRES, AND WHAT HE WOULD LIKE TO DO.

If a person knows how to identify his values, then he can use those values in clarifying objectives and stating actions that will be needed to reach those objectives.

Exercise #6

OBJECTIVE: PARTICIPANTS WILL BE ABLE TO RECOGNIZE HOW VALUES INFLUENCE THE PRIORITY AND EVALUATION OF DECISIONS.

PROCEDURE: WRITE IN THE SPACE BELOW AS MANY AS POSSIBLE OF THE DECISIONS WHICH YOU MADE ON YOUR JOB LAST WEEK.

_____

_____

_____

_____

_____

FIND A PARTNER AND DISCUSS THE FOLLOWING QUESTIONS:

- WERE ANY OF THESE DECISIONS MORE IMPORTANT THAN OTHERS TO YOU?
- WHAT MADE THESE DECISIONS MORE IMPORTANT THAN THE OTHERS?
- WHAT DETERMINES WHAT YOU WANT?
- DO YOU ALWAYS KNOW WHEN YOU ARE DOING SOMETHING THAT MAY TURN OUT TO BE CRITICAL OR IMPORTANT?
- HOW, THEN, CAN YOU DESCRIBE WHEN A DECISION IS IMPORTANT?

SUMMARY

The important thing to be grasped is that every person holds a system of values which is entirely personal. These values impinge upon the decisions that a person makes. It is necessary, therefore, to look at the values of the group (relative to the decision to be made) to ensure that the group operates on values held in common. Values are not inflexible, but are learned and modified based on exposure and experience. If there are value conflicts among group members, these conflicts must be resolved before the group can act as a coordinated collaborative decision-making body.

Individual Traits, Styles, and Preferences

Some psychologists maintain that there are two kinds of people, those who are directed mainly by their minds and those who are directed mainly by their emotions. According to Arnold (1978) clinical experiments suggest the human brain has the capacity to operate well in both modes. Most of the decisions we make in life affect people, ourselves and others. People, by their nature, are beings who feel as well as think. A decision reflecting only logic may fail if those on whom its success depends reject it for emotional reasons. The most durable decisions are those that reflect both emotion and reason. The decision you can make considering thinking and feeling is a better one than you can make with either emotion or logic alone. We all use perception (feeling) and judgment (thinking) to varying degrees in our decision making. These differences or variations in our behavior are caused by certain basic differences in mental functioning (Jung, 1923). Perception determines what the individual sees in a situation and his judgment determines what he decides to do about it. If people differ systematically in what they perceive and the conclusions they come to, they may, as a result, show corresponding differences in their reactions, in their interests, values, needs, and motivations, in what they do best and in what they like best to do.

NOTES

Exercise #7

OBJECTIVE: PARTICIPANTS WILL IDENTIFY THEIR OWN PREFERRED WAY OF USING PERCEPTION AND JUDGMENT BY COMPLETING THE MEYERS-BRIGGS-TYPE INDICATOR.

PROCEDURE: PARTICIPANTS WILL TAKE HOME A COPY OF THE MYERS-BRIGGS-TYPE INDICATOR AND COMPLETE IT. THE COMPLETED INSTRUMENT WILL THEN BE BROUGHT TO THE NEXT WORKSHOP FOR DISCUSSION. THE PRODUCT OF THE EXERCISE WILL BE AN EXAMINATION OF DIFFERENCES AMONG THE GROUP MEMBERS IN THEIR PREFERRED WAY OF USING PERCEPTION AND JUDGMENT IN MAKING DECISIONS.

Summary

In general, knowledge of a person's basic preferences could be useful in almost any decision. Recognizing one's own tendencies or preferences not only allows some counteractive method to be used to moderate these tendencies if necessary but also makes one more open to others' additional insights and perspectives.

Qualifications of Decision-Makers

In this section, the decision-making process is tied to the theory of Situational Management. Some decisions are best made by single individuals, some by groups, some by Quality Circles. Successful decision-making must take into account the proper domain of the decision to be made. Knowing the different types of decisions, the different types of situations, and the different types of management styles will all serve to help decide WHO can decide best.

Programmed and Nonprogrammed Decisions

Some decisions are easier to make because they are structured, are relatively unambiguous, and follow a long line of precedents (Robbins, 1964). Problems occurring frequently require a routine or programmed approach for solving. Programmed decisions minimize the need to exercise discretion, thereby saving in cost by requiring less expert judgment. When problems are unique and unstructured, they require a different type of approach.

Programmed decisions include objectives, standards, procedures, methods, rules, and policies.

-Objectives establish a common set of expectations and serve as criteria by which decisions can be made. Criteria against which something can be compared are standards.

-Procedures are series of interrelated sequential steps established for the accomplishment of a task. A method is one step of a procedure.

-Rules are explicit statements that tell a person what he ought or ought not to do.

-Policies are vague guidelines to decision-making, allowing the administration to utilize judgment within specific constraints.

NONPROGRAMMED DECISIONS ARE THOSE MADE IN A SITUATION THAT IS RELATIVELY NOVEL AND UNSTRUCTURED WHERE NO CUT AND DRIED SOLUTION EXISTS. This may be because the problem is novel, its structure is vague, ambiguous, or complex, or it is so important that it deserves a custom-tailored treatment. Frequently used nonprogrammed decision guides are programs, strategies, and budgets.

-A program is a complex of plans for achieving an objective.

-Strategies are plans in reaction to or considering the actions of others.

-Budgets are numerical accounts, typically prepared for revenues, expenses, and capital expenditures such as machinery and equipment.

All nonprogrammable decisions are nonroutine, not for continual reuse, and respond to novel and uncertain circumstances.

Quality Circles Precedent

The original intent of QCs in Japanese management practice was to raise the standard, i.e., the quality, of Japanese products. The kinds of problems in the domain of QCs were such things as:

-eliminating machining errors

-reduction of dimensional defects in felt

-reduction of defects in metal plates

-rewind cutting process improved

-simplification of the weighing of rubber compounding ingredients

-reduction of raw silk sticking

and so on...(Asian Productivity Organization, 1972).

These decisions were about problems about which the workers were likely to be most informed and in which the workers were most interested. The original Japanese QCs did not rewrite the company budget, nor did they do marketing forecasts. The QCs were designed to encourage first-line supervisory capabilities; by including all workers, they raised the morale of the work place, encouraged and developed employee's awareness of what quality is, what problems may arise, and what to do about them and they served as a means of unifying company-wide quality control activities...including working toward the clarification of executive and managerial policy, stabilizing the workplace supervision and guaranteeing standards.

Quality Circles have come halfway round the world, and on the way, modifications in their operation and content have changed. What has not been well established is what kind of problems, i.e., what kind of decisions, should QC educators address.

Exercise #6

OBJECTIVE: PARTICIPANTS WILL BE ABLE TO DISCUSS THE TYPES OF DECISIONS QC EDUCATORS SHOULD ADDRESS.

PROCEDURE: WITH THE FACILITATION OF THE WORKSHOP DIRECTOR, THE TOTAL GROUP WILL DISCUSS THE TYPES OF DECISIONS QC EDUCATORS SHOULD MAKE AND WHAT TYPES OF DECISIONS QC EDUCATORS SHOULD NOT MAKE. THE PRODUCT OF THE GROUP WILL BE AN EXAMINATION OF THE PROCESS BY WHICH INSIGHTS AND CONCLUSIONS WERE DISCUSSED. (SUGGESTED QUESTIONS: WHAT KIND OF DECISION WAS TO BE MADE, PROGRAMMED OR UNPROGRAMMED? WAS THERE CONSENSUS AMONG GROUP MEMBERS?)

Clues from Management Theory

The insight to be gained from management theory is that the appropriateness of a decision-making body (individual or group, manager or employee) is contingent upon several interactive factors. In one theory called SITUATIONAL LEADERSHIP (Hersey and Blanchard, 1969), the important variables for effective leadership include:

- the amount of guidance and direction (task behavior) a leader gives
- the amount of socioemotional support (relationship behavior) a leader provides
- the readiness (maturity) level that followers exhibit in performing a specific task, function or objective;
- and/or in the case of groups, the level of maturity of the group as a whole.

The important insight to be gained here is that the maturity of the group, relative to the decision task, detemines whether:

-management (administration) tells employees (staff) what to do (telling)

-directs and supports them while they become confident in doing it (selling)

-supports and shares in their decision making (participating); or

-delegates decision making responsibilities to them (delegating) completely.

The key to determining which decisions should be made by management (administration) and which by employees (e.g., staff in a QC) depends upon the maturity of the group relative to the decision to be made. The concept of maturity consists of two dimensions:

- Job maturity (ability) and
- Psychological maturity (i.e., willingness having to do with confidence and commitment)

A diagram showing the interaction of relationship behavior and task behavior of managers and maturity level of the employee group is shown in figure 2 which follows.

The four quadrants of the diagram show the leadership styles composed of high and low people orientation and high and low task orientation.

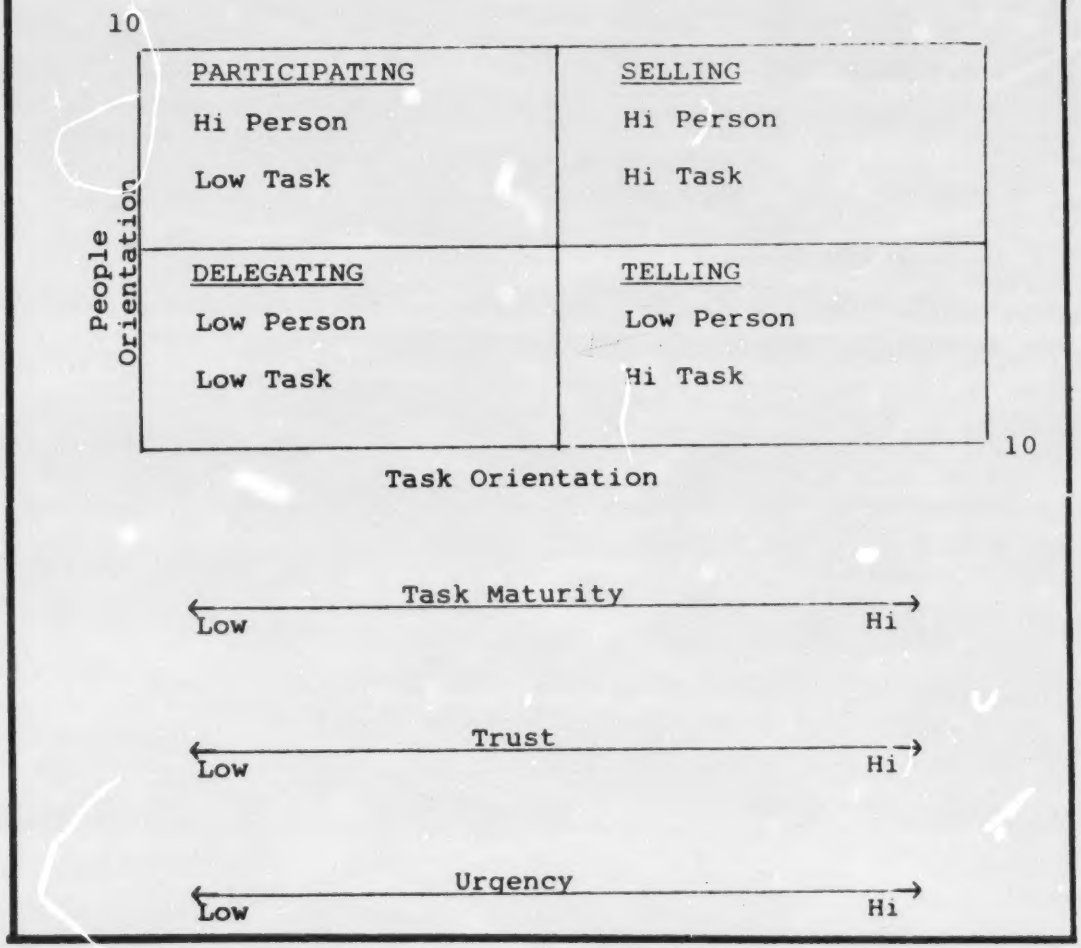
HIGH TASK/LOW PEOPLE-Oriented to close control, frequent intervention and decision making by the supervisor.

HIGH TASK/HIGH PEOPLE-Oriented to close control, frequent intervention and decision making by the supervisor, but also emphasizes two-way communication, employee participation and more employee control over how the work gets done.

HIGH PEOPLE/LOW TASK-Oriented toward employee participation in all aspects of decision making, two-way communication, training and employee devlopment, employee control over how the work gets done and team building.

LOW PEOPLE/LOW TASK-The employee is delegated primary control over all aspects of the work process. The employee is encouraged to take on new assignments and responsibilities. The supervisor acts as a consultant and facilitator between individuals and groups. The supervisor's focus is on work process improvement, interdepartmental interface and employee development.

Figure 2. Situation Leadership Grid



Situational Leadership Style

A. Leadership style is characterized by:

- Who decides how a job gets done
- The amount of control exercised by the supervisor
- The amount of independence and influence allowed the employee.

B. Leadership style should be determined by:

- Leadership style is determined by a supervisor's leadership orientation: either a task orientation, a people orientation or some combination of both.
- There are four basic combinations of leadership orientation which can result in four distinct leadership styles.

The QC approach is an excellent example of situational leadership in operation. Participants must demonstrate that they are capable of functioning at high levels of trust utilizing sufficient maturity to complete important tasks.

Management's support is also evident through the delegation of specific task areas for circle participants to name problems, analyze, and recommend solutions. This approach maximizes participation and ensures that the people closest to the problems contribute to developing solutions.

QUALITY CIRCLES AND DECISION MAKING

This section presents an overview of the decision-making involved in QCs. QCs involve people in solving problems and tap their brain power effectively. The impact of QC activities is felt by both the company and the community. People tend to enjoy their work in QCs since their suggestions are accepted.

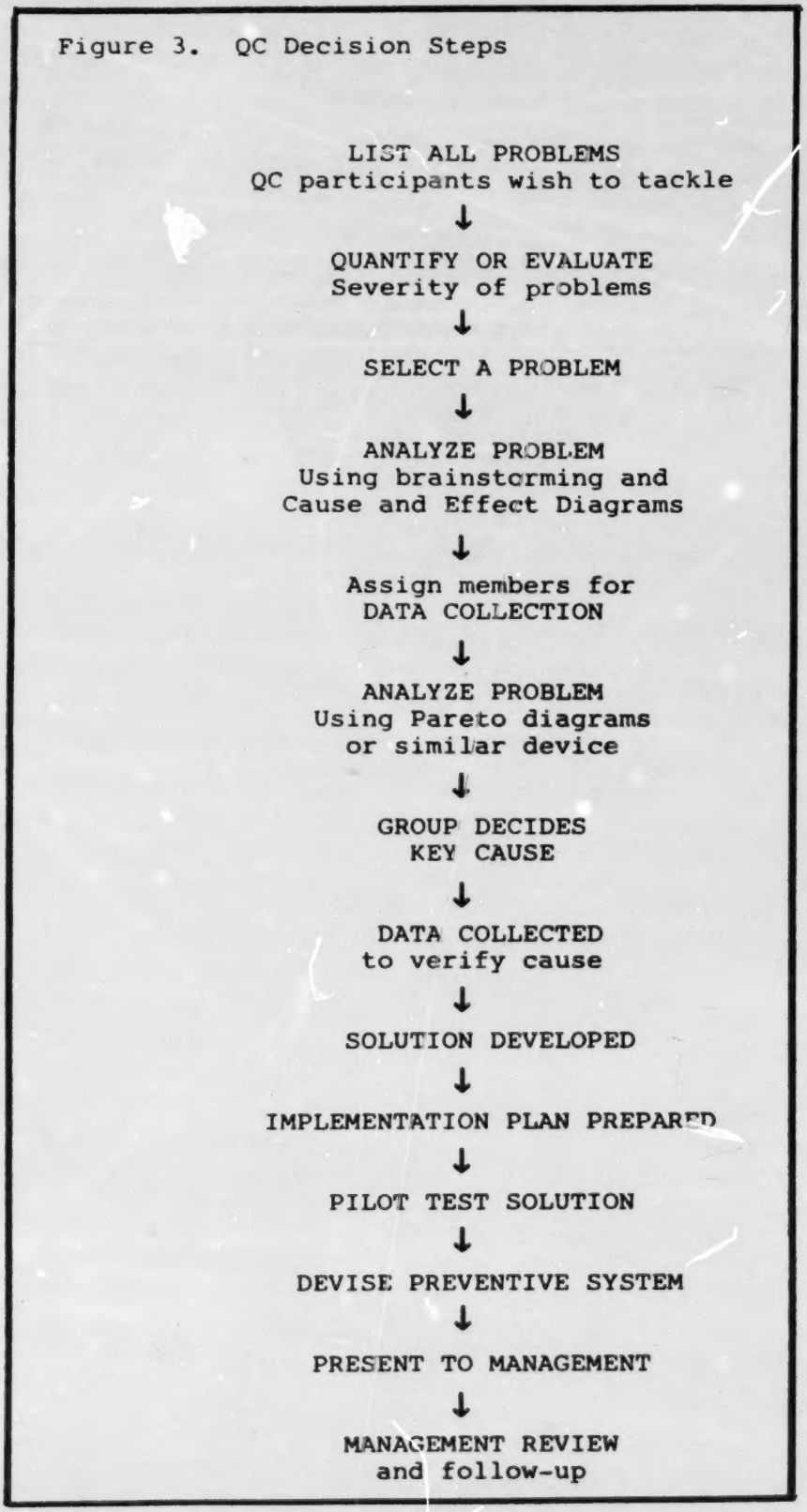
Peter Drucker (1954) describes the Japanese decision-making system as highly systematic and standardized, enabling them to make highly effective decisions. In most cases, a proposed decision is debated until an agreement is reached; and only then is a decision made. Although this process takes a long time, Drucker mentions the following key advantages in this method:

- The focus is on deciding what the decision is all about.
- The Japanese bring about dissenting opinion. There is discussion on an answer until consensus is reached. Many approaches to a problem are explored.
- The focus is on alternatives rather than on the "right" solution.
- It eliminates "selling" a decision. It builds execution into the decision-making process.

The Process of Decision Making In Quality Circles

The following diagram shows the steps involved in making a QC decision.

Figure 3. QC Decision Steps



In order for any of these operational steps to be successful, participants must make effective decisions.

1. In step 1, participants have to know how to decide which problems they wish to tackle.

2. In step 2, decision-making skills are necessary to enable members to devise the best method to quantify problems.

3. In step 3, participants have to decide how assignments for the various tasks will be made--which members will collect what data.

4. In step 4, in the preparation of the pareto diagram, members must decide on which of the problems should be worked on collectively.

5.&6. In steps 5 and 6, the idea-generating brainstorming techniques help get all members involved so that various causes can be listed on a sheet. All members must then decide which key cause is picked for analysis.

7. In step 7, more data are collected to verify cause.

However, if the data do not show sufficient evidence, then the QC participants will have to decide to search for another cause and collect new data for verification. It must be noted that sometimes this process might have to be repeated two or three times until the true cause is found.

8.,9.&10. In steps 8, 9, and 10, once the cause is verified, QC members must decide what method they should use to solve the problem and decide on a plan for implementation. Once the approval to test the solution is decided upon, a small-scale pilot study is conducted. Rather than a full-scale implementation of the wrong solution, the small-scale pilot saves time, money,and the energy of the QC.

11. In step 11, the QC members must develop a preventive system to make sure the problem remains solved in the future. Without an adequate prevention program, the solutions are effective for only a brief duration of time. QC members should also decide after reviewing all other aspects of the problem if the solution can be implemented in other areas where similar problems exist.

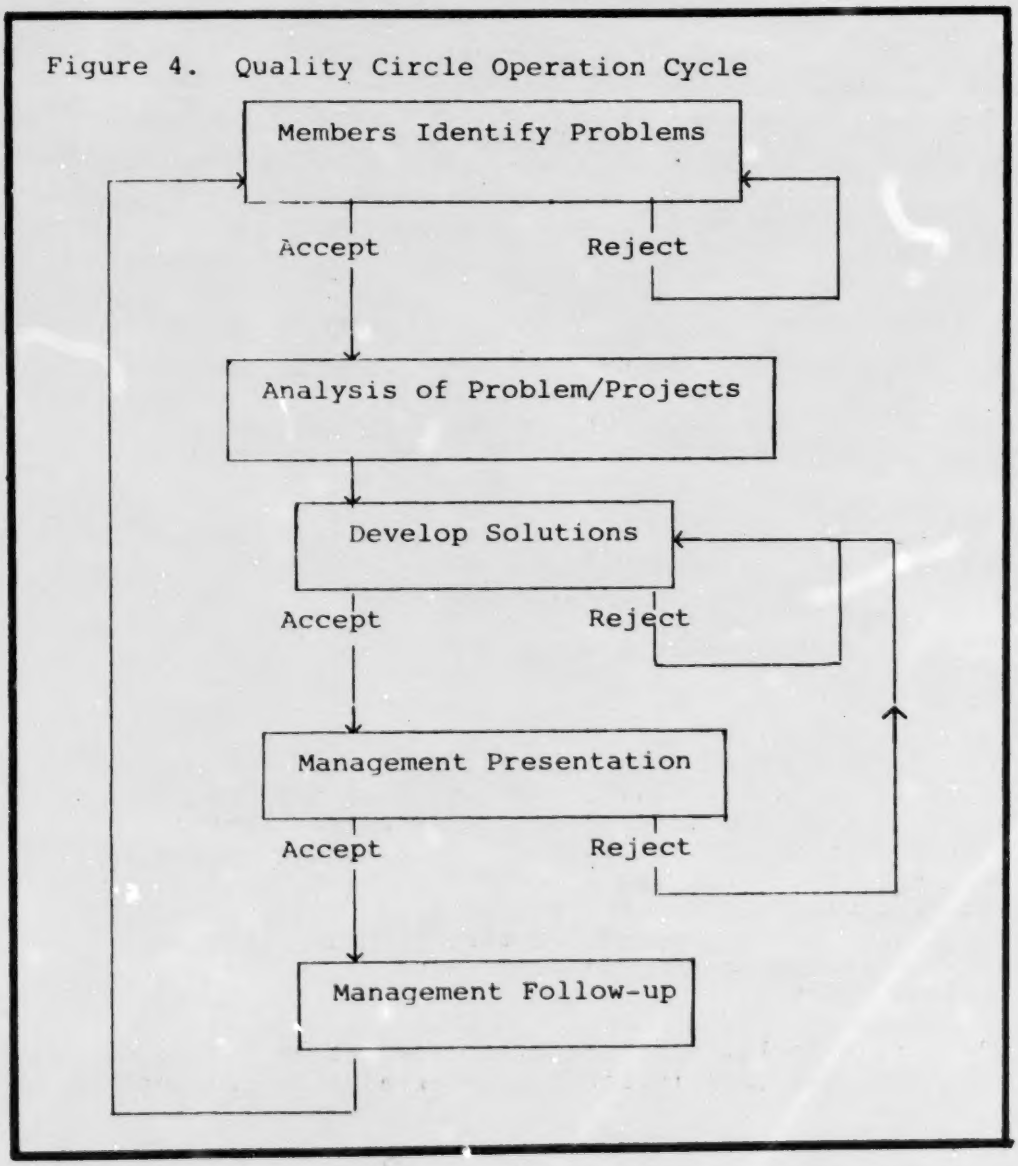
12. In step 12, when the QC arrives at an effective solution, the facilitator has to arrange to present

to management the results of the QC's work--the solution to the problem. All members of the QCparticipate in the preparation of the presentation and decide how the QC can present it most effectively.

13. In step 13, after QC members have presented the solution to management it is management's responsibility to review the suggestions and solutions thoroughly. A followup program is prepared for future use . The QC should be informed about the decisions so that the communication is complete and members know the outcome of their efforts.

The following flowchart gives an overview of QC operation.

Figure 4. Quality Circle Operation Cycle



The Content of Decision Making in Quality Circles

When the problems are attacked in QCs, the solutions or suggestions are not based on opinions or on imagination. Generally, the QC members use statistical techniques such as cause and effect diagrams, pareto diagrams or checksheets. This helps members to collect new data and analyze the problem logically and systematically. The QC members like this approach, and management approves it since the facts are collected and the suggestions are based on sound statistics.

Even though the word "STATISTICS" evokes frightful feelings in many people, QC members find STATISTICS TO BE ONE OF THE MOST USEFUL TOOLS TO ANALYZE DATA.

Statistics is a systematic way of collecting and analyzing any given quantitative data. In order to make effective use of quantitative data in making decisions it is necessary to have a systematic method of organizing, summarizing, and analyzing the individual facts.

The steps used in applying statistical methods follow:

- defining the problem
- collecting the relevant information
- investigation
- analyzing the data
- presentation of the findings.

The following techniques are effective in collecting data in the QC program:

- checksheets
- drawings
- graphs
- histograms

- control charts
- sampling.

In collecting quantitative data, any or all of these techniques can be used. The important point is that QC decisions are based upon facts and the facts are often best presented numerically in summarized form.

A SYSTEMATIC APPROACH TO DECISION MAKING

Apart from its use in QCs, decision making has received much attention as an essential survival skill that can be taught to individuals. One tool which may be used to enhance a structured approach to decision making was developed by Arnold (1978). Arnold suggests that the purpose of a decision is that it allows us to choose among two or more possible courses of action in those situations wherein we perceive a gap between what is happening--or may happen--and what we or someone else would like to see happen. The decision-making process begins with the perception of this gap and ends with an action that will narrow or close it. Arnold's seven-step process is shown on the following page.

NOTES

THE SEVEN BUILDING BLOCKS OF GOOD DECISIONS

1. SMOKE OUT THE ISSUES. Why is a decision necessary? What are the consequences of doing nothing?

2. STATE YOUR PURPOSE. What needs to be determined? What do you want to decide? Why?

3. SET YOUR CRITERIA. What do you want to achieve, preserve, or avoid by whatever decision you make?

4. ESTABLISH YOUR PRIORITIES. What are the criteria that any solution absolutely has to satisfy? What other criteria should it meet?

5. SEARCH FOR SOLUTIONS. How can you meet the criteria you have set?

6. TEST THE ALTERNATIVES. How does each alternative stack up against the priorities?

7. TROUBLESHOOT YOUR DECISION. What could go wrong? How can your choice be improved?

The best way to get a feel for how the Seven Building Block process works is to apply them to relevant problems. In the following example, each building block is demonstrated and discussed.

STEP 1. SMOKING OUT THE ISSUES.

The need for a decision presupposes the existence of a problem. In order to make a good decision, one must have a complete understanding of the problem. It is important to determine if a decision is indeed called for and if so, why. The best way to define the problem and determine the need for action is to ask yourself the following three questions:

- Why is a decision necessary? (often produces a list of possible consequences--good and bad)
- What is/is not the problem?
- What is(reality)/should be(expectation)/could be (desire) happening?

Decisions are usually made when:

- Something is wrong and needs to be corrected
- Something is threatening and needs to be prevented
- Something is inviting and needs to be accepted
- Something is missing and needs to be provided

As an example of how to use the seven buiding blocks to make good decisions, an example problem has been developed.

The Problem

A private foundation has just recently awarded the Brighton Elementary School $10,000 for school improvement. The School Advisory Committee must decide how they will spend the money. In reviewing the grant award, the School Advisory Committee realizes that none of the money can go towards hiring additional staff or increasing salaries. The funds must be used within two months.

NOTES

Form 1: Smoke out the issues: Why is a decision necessary? What are the consequences of doing nothing?

The first question to be answered is "Are there any undesirable consequences from doing nothing? If so, what?

What is the situation and does it call for a decision? What is it the School Advisory Committee is trying to correct, prevent, accept, or provide? What is happening? What should be happening? What could be happening?

A decision is necessary because the money is available. The School Advisory Committee is trying to accept the funds. If the funds are not used within the time frame of the grant they will be lost. There are many areas where the money could be utilized to improve the school's program.

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STEP 2. STATE YOUR PURPOSE.

What needs to be determined? What do you want to decide? Why? State the purpose as broadly as possible rather than as an either/or proposition. The more broadly the purpose is stated, the wider the range for solutions. The wider the possible solutions, the more likely it is to find one tailored to your needs. In stating your purpose, choose something manageable and positive and express it, if possible, in the form of an opportunity. Avoid either/or or yes/no formulations, and state your purpose broadly rather than specifically.

Form 2. State the purpose of the School Board Advisory members' decision.

The purpose is to decide the best use of the $10,000.

NOTES

STEP 3. SET YOUR CRITERIA.

What do you want to achieve, preserve, or avoid by whatever decision you make? Make your list as comprehensive and specific as possible. Write down all the criteria that occur to you, rational as well as emotional ones. The best criteria are positive, not reactive. They seek not only to defuse a crisis but to capitalize on it, to wring advantage from adversity.

Form 3. Write down what you believe to be the School Advisory Committee's criteria that any solution to the problem should satisfy.

Criteria should achieve: Full use of the $10,000.
Equitable distribution of funds to whole school

Criteria should preserve: Good rapport with school community and school staff.

Criteria should avoid: Exceeding $10,000 limit. Increasing work load of school staff.

STEP 4: ESTABLISH YOUR PRIORITIES.

What are the criteria that any solution absolutely has to satisfy? What other criteria should it meet? Starting with the list of things to be achieved, preserved, and avoided, we must separate the criteria into categories of relative importance. Then we must decide which ones are absolute requirements and which are desirable objectives.

The absolute requirements are ones which cannot be dismissed as criteria; desirable objectives are criteria that can be eliminated from consideration but would certainly be worth achieving if possible.

After separating the criteria into these two categories, we then need to further assess the desirable objectives to determine which are more desirable than the others. One way to do this is to assign a value to each objective, starting with the one that appears to be most important. This desirable objective would be assigned a value of "10." The other objectives would be assigned lesser values, depending upon how they measured up to a "10" rating. These values become part of a weighting system by which the decision can be made. This system is explained in the following section.

NOTES

Form 4:

Determine what things the School Advisory Committee might possibly want to consider as uses of the money and establish a list of criteria. Separate the absolute requirements from the desirable objectives. Remember to ask: "What are the requirements that any decision absolutely has to satisfy in order to be satisfactory?" Any criterion that doesn't meet that test belongs in the "desirable" category.

Absolute requirements: Within $10,000 limit. Not an ordinary expense (already budgeted). Something quickly implemented (within the time frame of the grant). Use other than for staff or teacher salaries.

Desirable Objectives: Something everyone in the school benefits by. Something that parents and the school community will approve of. Something that sets Brighton apart as special. Something that does not need lots of work to implement.

Now rank the desirable criteria by measuring their relative importance. Choose the criterion you value at 10 or maximum importance. Then assign values to lesser criteria that reflect their importance in relation to 10. (All absolutes are assumed to be more important than desirables.)

Remember to ask youself:

- Why is this important?
- What would be lost if it were not a criterion?
- What other criteria is it less important or more important than?

Remember what is important is that your rankings reflect your needs and values. Don't ignore criteria that others consider unimportant if these values are important to you.

The criteria established by the School Advisory Committee were divided into absolute requirements and desirable objectives as follows:

Absolute Requirements:

1. **Within $10,000 limit.**

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2. Not an ordinary expense.

3. Something quickly implemented.

4. Use other than for staff or teacher salaries.

Desirable Objectives:

Each desirable objective was then also given a value weighting with the most desirable objective valued at "10."

5. Something everyone in the school benefits by. (10)

6. Something that doesn't need lots of work to implement. (8)

7. Something that parents and school community will approve of. (5)

8. Something that sets Brighton apart as special. (3)

Assigning values to criteria is not easy. As you assign values you may have second thoughts. Will you give preference to logic or emotions? Now is the time to consult your values. Some of your criteria may not be as important as you thought. Restate, refine, and revalue them. Ideally you should assign values to criteria before you have thought of possible solutions.

STEP 5: SEARCH FOR SOLUTIONS.

After the purpose is determined, the criteria and priorities defined in order to reach the purpose--the next step is finding out how to meet the criteria. In other words "What are the possible courses of action?" The criteria should generate the alternatives providing a wider range of possibilities to choose from. This increases the likelihood of finding the best solution because looking beyond the obvious choices, we are able to take the best features of several alternatives and combine or modify them to fit our criteria.

Form 5:

Look again at the decision problem of the School Advisory Committee and generate as many solutions as you can.

All school field trip.

New computer in library accessible to both students and staff.

Supplemental Textbooks.

Investment opportunity.

Additional playground equipment.

School mural.

Special event on school site such as demonstration of magic, hypnotism, etc.

End-of-school year carnival.

STEP 6: TEST THE ALTERNATIVES.

Testing the alternatives involves three steps. First, ask yourself how well each alternative meets each criterion.

It is possible to look at how well each alternative meets each criterion by using a matrix such as the following:

Alternatives: A - all school field trip

B - new computer

C - school van

D - supplemental textbooks

E - playground equipment

F - School mural

G - special on-site event

H - carnival

Example Matrix:

Criteria	A	B	C	D	E	F	G	H
Absolute Requirements:								
1. =$10,000	Y	Y	Y	Y	Y	Y	Y	Y
2. unbudgeted	Y	Y	Y	Y	Y	Y	Y	Y
3. quick	Y	Y	Y	Y	Y	N	Y	Y
4. nonsalary	Y	Y	Y	Y	Y	Y	Y	Y
Desirable Objectives:								
1. for everyone	Y	Y	N	N	N		Y	Y
2. little work	N	Y	Y	Y	?		N	N
3. parents like	Y	Y	?	N	N		Y	Y
4. Brighton is special	N	Y	Y	N	N		Y	Y

Note that alternative F does not meet one of the absolute requirements. It therefore does not qualify regardless of the values assigned to the desirable objectives.

Using a 10-high scale, rate each alternative relative to each criterion. Just as you must have one or more criteria that rate a 10, so you must have one or more alternatives that rate a 10 against each criterion. If no alternative does a perfect job of satisfying a particular criterion, the one that comes closest to doing so rates a 10.

Form 6A.

Use the following matrix as a model for generating your matrix to test the alternatives. Remember, before making a final choice among alternatives, consider how to overcome the apparent winner's shortcomings or how to combine the characteristics of several alternatives to create a better solution. Steps to using the matrix follow:

1. Using the best information you can gather about each alternative, rate each alternative against each criterion. The alternative that does the best job of satisfying a criterion rates a 10 (even if not perfect).

2. Multiply the value of each criterion by the rating you have given to each alternative.

3. Add the totals for each alternative and compare results.

Alternatives: A - all school field trip

B - new computer

C - School van

D - Supplemental textbooks

E - playground equipment

F - School mural

G - Special on-site event

H - carnival

Example Matrix:

CRITERIA	ALTERNATIVE A	B	C	D	E	F	G	H
Desirable Objectives:								
(ranked from high to low)								
1. for everyone	10	9	5	5	5		10	10
2. little work	5	10	8	7	8		5	3
3. parents like	10	8	9	5	5		10	10
4. Brighton is special	8	10	2	4	3		9	9

Multiplying each of the figures by the weights of the criteria, we get the following:

DESIRABLE OBJECTIVES:	value	A	B	C	D	E	F	G	H
1.	10	100	90	50	50	50		100	100
2.	8	40	80	64	56	64		40	24
3.	5	50	40	45	25	25		50	50
4.	3	24	30	6	12	9		27	27
Totals		214	240	165	143	148		217	201

If two or more solutions are close, ask yourself what your feelings about the solutions are. If you have one, why do you have it? It may be helpful for you to retrace steps in Form 6B.

NOTES

CHECKSHEET

FORM 6B.

YES NO 1. Did you state your purpose correctly?

YES NO 2. Are there additional things to be achieved preserved, or avoided that you failed to list as criteria?

YES NO 3. Do the values you assigned to the criteria accurately reflect your priorities?

YES NO 4. Have you overlooked any other alternatives that deserve further thought?

YES NO 5. Are you sure of the accuracy of the data which were used to rate your alternatives, particularly the heavily weighted criteria?

YES NO 6. When you rated each alternative against the criteria, did you add to or "fudge" any of the ratings?

YES NO 7. Did you use a 10 rating for the alternative that best satisfied each criterion and rank the others in relation to it?

YES NO 8. Did you make any simple mathematical errors?

YES NO 9. Can you combine features of two or more alternatives to develop a superior solution? In developing a superior solution, look for existing weak points and try to strengthen them.

STEP 7. TROUBLESHOOT YOUR DECISION.

Troubleshooting is doing "reality testing" of our decisions. In other words, we learn how to anticipate and cope with problems that could confront the decisions, reactions that could weaken them, and changes in the environment that could undermine them.

There are three basic steps in troubleshooting.

1. First ask yourself: What could go wrong with the solution I've chosen?" List all of the possible problems you can foresee.

2. Second, make a rough calculation of the likelihood of each problem occurring and the impact if it does occur (a scale of high, medium, and low is sufficient for most purposes.) 3. Third, take preventive action to cope with each potential problem. Consider that you are holding the decision up to target practice. If an idea can be "shot down" it is better to find out in advance and take corrective action. If it cannot be shot down, you can prepare to carry it out with increased confidence.

Form 7.

Answer the three questions posed above to trouble shoot the decision made by your group pertaining to the School Advisory Committee's use of the new funds.

1. Computer training would be essential. Additional costs likely. Maintenance costs would need to be budgeted for future years.

2. Computer access would need to be allocated so that both staff and students would have equal time.

3. Students might damage machine. Expensive repair.

4. Computer selection might require staff or faculty time which would not be reimbursed.

5. Some students might not use computer without special assistance. Classtime for computer use might be hard to schedule.

Exercise #9

OBJECTIVE: PARTICIPANTS WILL GAIN PRACTICAL EXPERIENCE IN USING ARNOLD'S SEVEN BUILDING BLOCK PROCESS TO LEARN HOW TO MAKE EFFECTIVE DECISIONS.

PROCEDURE: DIVIDE TOTAL GROUP INTO SUBGROUPS OF APPROXIMATELY SIX PARTICIPANTS. EACH SUBGROUP WILL SELECT A FACILITATOR AND A RECORDER FOR THE SESSION. EACH GROUP SHOULD SELECT A PROBLEM OF CONCERN AT SCHOOL. THE PRODUCT OF EACH GROUP WILL BE THE COMPLETED FORMS ACCOMPANYING THIS EXERCISE AND A DECISION TO REPORT BACK TO THE GROUP. AT THE FOLLOWING MEETING EACH DECISION WILL BE PRESENTED BY A MEMBER OF THE SUBGROUP WHO IS PREPARED TO GIVE RESPONSES TO EACH OF THE SEVEN STEPS IN THE DECISION PROCESS BASED ON THE COMPLETED FORMS OF THE SUBGROUP.

STEP 1: Smoke out the issues: Why is a decision necessary? What are the consequences of doing nothing?

The first question to be answered is "Would there be any undesirable consequences from doing nothing? If so, what?

Decisions are usually made when:

- something is wrong and needs to be corrected
- something is threatening and needs to be prevented
- something is inviting and needs to be accepted
- something is missing and needs to be provided.

What is the situation and does it call for a decision? What is it you are trying to correct, prevent, accept, or provide? What is happening? What should be happening? What could be happening?

_____

_____

_____

_____

NOTES

STEP 2. **State** the purpose of your decision.

_____

_____

_____

_____

_____

_____

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NOTES

STEP 3. Write down what you believe to be the most important criteria that any solution to the problem should satisfy.

Criteria should achieve:

_____

_____

Criteria should preserve:

_____

_____

Criteria should avoid:_____

_____

NOTES

STEP 4:

Determine what things you might want to consider and establish a list of criteria. Separate the absolute requirements from the desirable objectives. Remember to ask: "What are the requirements that any decision absolutely has to satisfy in order to be satisfactory?" Any criterion that doesn't meet that test belongs in the "desirable" category.

Absolute requirements:_____

_____

_____

_____

_____

Desirable Objectives:_____

_____

Now rank the desirables by measuring their relative importance. Establish the criterion you value at 10 or maximum importance. Then assign values to lesser criteria that reflect their importance in relation to 10. (All absolutes are assumed to be more important than desirables.)

Remember to ask youself:

- Why is this important?
- What would be lost if it were not a criterion at all?
- What other criteria is it less important or more important than?

Remember what is important is that your rankings reflect your needs and values. Don't ignore criteria that others consider unimportant if these values are important to you.

STEP 5:

Look again at the decision problem you have identified and generate as many solutions as you can.

STEP 6.

Use the following matrices as a model for generating your matrix to test the alternatives. Remember, before making a final choice among alternatives, consider how to overcome the apparent winner's shortcomings or how to combine the characteristics of several alternatives to create a better solution. Steps to using the matrices follow:

Matrix 1:

1. Using the best information you can gather about each alternative, rate each alternative against each criterion. The alternative that does the best job of satisfying a criterion rates a 10 (even if not perfect).

Example Matrix 1:

CRITERIA	ALTERNATIVE A	B	C	D	E	ETC
Absolute Requirements:	Y or N?					
1.						
2						
3.						
etc.						
Desirable Objectives:						
(ranked from high (of "10") to low)						
1.						
2.						
3.						
etc.						

2. Multiply the value of each criterion by the rating you have given to each alternative.

3. Add the totals for each alternative and compare results.

Example Matrix 2:

Criteria	Alternatives						
	A	B	C	D	E	F	etc.
Desirable Objectives:							
1.							
2.							
3.							
etc.							

If two or more solutions are close, ask yourself what your feelings about the solutions are. If you have one, why do you have it? It may be helpful for you to retrace steps in figure 7.

STEP 7.

Answer the questions posed in figure 7 above to trouble shoot your decision.

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